Calculus 1 Workbook

Derivatives of ln(x) and e^x

krista king MATH

EXPONENTIAL DERIVATIVES

1. Find $f'(x)$ if $f(x) = (x^3 - x)e^{2x}$.

2. Find $g'(x)$ if $g(x) = 5x^2e^{2x^2} - 7x + 1$.

3. Find $h'(x)$ if $h(x) = \sin(4x)e^{3x^2+4}$.

© Krista King Math

LOGARITHMIC DERIVATIVES

■ 1. Find $f'(x)$.

$$f(x) = \ln(x^2 + 6x + 9)$$

■ 2. Find $g'(x)$.

$$g(x) = \ln\sqrt{x^3 + x}$$

■ 3. Find $h'(x)$.

$$h(x) = \ln\left(\frac{x^3}{x^2 + 3}\right)$$

© Krista King Math

LOGARITHMIC DIFFERENTIATION

■ 1. Use logarithmic differentiation to find dy/dx.

$$y = x^4 e^x \sqrt{x}$$

■ 2. Use logarithmic differentiation to find dy/dx.

$$y = 5x^4 e^{3x} \sqrt[4]{x}$$

■ 3. Use logarithmic differentiation to find dy/dx.

$$y = x^3 e^{2x} \sqrt{5x}$$

■ 4. Use logarithmic differentiation to find dy/dx.

$$y = \frac{(2e)^{\cos x}}{(3e)^{\sin x}}$$

■ 5. Use logarithmic differentiation to find dy/dx.

$$y = e^x (2e)^{\sin x} (3e)^{\cos x}$$

© Krista King Math

FOR THE LOVE OF MATH

WWW.KRISTAKINGMATH.COM